

What is claimed is:

- 1           1. A surveillance system, comprising:  
2           a sensor subsystem for providing real time spherical image data and surveillance data;  
3           a network operatively coupled to the sensor system for delivering the spherical image  
4           data and surveillance data to a management console; and  
5           a management console operatively coupled to the network for receiving the spherical  
6           image data and the surveillance data and generating a spherical view display  
7           using the spherical image data and a situational awareness management  
8           display using the surveillance data.
- 1           2. The system of claim 1, wherein the sensor subsystem provides non-image data to the  
2           management console via the network and the management console displays the non-image data  
3           on the situational awareness management display together with the surveillance data.
- 1           3. The system of claim 1, further comprising:  
2           a data repository image database operatively coupled to the network for recording the  
3           spherical image data.
- 1           4. The system of claim 3, wherein the data repository image database further comprises:  
2           an image recorder for recording the spherical image data; and  
3           an image player for playing back the spherical image data on the spherical view  
4           display in response to a user request.
- 1           5. The system of claim 3, wherein the data repository supports multiple physical  
2           repository types.
- 1           6. The system of claim 1, wherein the sensor subsystem further comprises:  
2           an image broadcaster for broadcasting the spherical image data on the network to one  
3           or more subscribers.

- 1           7. The system of claim 1, wherein the sensor subsystem further comprises:  
2           an image compressor for compressing the spherical image data.
- 1           8. The system of claim 1, wherein the surveillance data is motion detection event data.
- 1           9. The system of claim 1, wherein the sensor subsystem further comprises:  
2           a motion detection module coupled to the network for generating motion detection  
3           event data in response to detecting motion in spherical image data received  
4           from the network.
- 1           10. The system of claim 9, where the motion detection module detects motion in a  
2           selected portion of the spherical image data received from the network.
- 1           11. The system of claim 1, wherein the situational awareness management display  
2           further comprises:  
3           a sensor system map for displaying the location of one or more sensors in the sensor  
4           subsystem.
- 1           12. The system of claim 1, wherein the situational awareness display includes user  
2           controls for setting a zone in the spherical imagery where the motion detection module will  
3           perform motion detection.
- 1           13. The system of claim 1, wherein the spherical view display includes user controls for  
2           providing a high-resolution image of a selected portion of the spherical view display.
- 1           14. The system of claim 2, wherein the non-image data is alarm data generated by an  
2           alarm source.
- 1           15.     The system of claim 7, wherein the management console includes an image  
2           decompressor for decompressing the spherical image data compressed in the sensor subsystem  
3           and displays the decompressed spherical imagery on the spherical view display.

1           16. The system of claim 9, wherein the motion detection module detects motion in the  
2 spherical image data by comparing a current spherical video frame to a reference spherical video  
3 frame and determining differences according to user defined settings.

1           17. The system of claim 1, wherein the surveillance data is used to track a moving object  
2 in the spherical image data.

1           18. The system of claim 1, wherein metadata is generated in the sensor subsystem and  
2 transmitted over the network for use by the management console to build the situational  
3 awareness display.

1           19. The system of claim 1, wherein at least one of the spherical image data and  
2 surveillance data is time stamped.

1           20. The system of claim 9, further comprising:  
2           a mirror control operatively coupled to the motion detection module for controlling a  
3           pan/tilt/zoom device in response to motion detection event data generated by  
4           the motion detection module.

1           21. A method of capturing, delivering and displaying spherical image data and motion  
2 detection data to a management console, comprising:  
3           capturing real time spherical image data at a sensor subsystem;  
4           monitoring the spherical image data for motion;  
5           responsive to detection of motion, generating motion detection event data;  
6           delivering the spherical image data and motion detection event data to a management  
7           console via a network; and  
8           at the management console, generating a spherical view display using the spherical  
9           image data.

1           22. The method of claim 21, further comprising:  
2           generating a situational awareness management display using the motion detection  
3           data.

1           23. The method of claim 21, wherein the spherical image data is broadcast to one or  
2           more subscribers on the network.

1           24. The method of claim 21, further comprising the steps of:  
2           compressing the spherical data at the sensor subsystem; and  
3           decompressing the compressed spherical data at the management console prior to  
4           display.

1           25. The method of claim 21, further comprising:  
2           tracking a moving object in the spherical image data.

1           26. The method of claim 25, further comprising:  
2           displaying the moving object on the situational awareness map.

1           27. A management console for a surveillance system, comprising:  
2           a processor for receiving spherical image data and surveillance data from a sensor  
3           subsystem via a network;  
4           a spherical sensor display coupled to the processor for displaying spherical image  
5           data; and  
6           a situational awareness display coupled to the processor for displaying surveillance  
7           data.

1           28. The management console of claim 27, further comprising:  
2           a user interface for allowing a user to configure the sensor subsystem.

1           29. A user interface for a surveillance system, comprising:  
2           an image receiver for receiving real time spherical image data and surveillance data;

3 a display engine for integrating the spherical image data and surveillance data; and  
4 a user interface coupled to the display image for displaying the integrated spherical  
5 image data and surveillance data.

1 30. The user interface of claim 29, further comprising:  
2 a display portion for displaying a sensor system map showing sensor coverage area.

1 31. The user interface of claim 29, further comprising:  
2 a control portion for controlling the display portion of the user interface.

1 32. The user interface of claim 29, wherein the sensor system map is a three-dimensional  
2 map showing location and orientation of sensors using location and attitude information  
3 associated with the sensors.

1 33. A computer-readable medium having stored thereon instructions which, when  
2 executed by a processor in a surveillance system, cause the processor to perform the operations  
3 of:  
4 receiving spherical image data and surveillance data from at least one sensor;  
5 integrating the spherical image data and surveillance data; and  
6 displaying the integrated spherical image data and surveillance data on a user  
7 interface.

1 34. The computer-readable medium of claim 33, further comprising:  
2 tracking a moving object in the spherical image data; and  
3 displaying the moving object on the user interface.